UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION

Xtera, Inc., **Xtera Topco Ltd., and** **Neptune Subsea IP Ltd.,** **Plaintiffs,** **v.** **Nokia Corporation,** **Nokia of America Corporation, and** **Alcatel Submarine Networks,** **Defendants.**	§ § § § § § § § § § § § § §	**CASE NO. 6:19-cv-00278** **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs Xtera, Inc. ("Xtera U.S."), Xtera Topco Ltd., and Neptune Subsea IP Ltd. (collectively, "Xtera") demand a trial by jury on all issues so triable and, for their complaint against Defendants Nokia Corporation ("Nokia Corp."), Nokia of America Corporation ("NAC"), and Alcatel Submarine Networks ("ASN") (collectively, "Nokia" or "Defendants") allege as follows:

THE PARTIES

1. Plaintiff Xtera, Inc. ("Xtera U.S.") is a wholly-owned subsidiary of Xtera Holdings Ltd., which in turn is a wholly owned subsidiary of plaintiff Xtera Topco Ltd. Xtera U.S. is the successor to Xtera Communications, Inc., which was founded in 1998.

2. Plaintiff Xtera Topco Ltd. is a UK corporation with its headquarters at Bates House, Church Road, Harold Wood, Essex, RM3 0SD, England. Plaintiff Neptune Subsea IP Ltd. is a wholly owned subsidiary of Xtera Holding Ltd., which in turn is a wholly owned

subsidiary of Plaintiff Xtera Topco Ltd., and is also a UK corporation with its headquarters at Bates House, Church Road, Harold Wood, Essex, RM3 0SD, England. Plaintiff Neptune Subsea IP Ltd. is a holding company for intellectual property owned by Plaintiff Xtera Topco Ltd. and its subsidiaries. All plaintiffs may be collectively referred to as "Xtera."

3. On information and belief, Defendant Nokia Corp. is a company organized under the laws of Finland, with its principal place of business at Karaportti 3, 02610 Espoo, Finland. On information and belief, other Nokia Defendants are wholly-owned subsidiaries of Defendant Nokia Corp.

4. On information and belief, Defendant NAC is a Delaware corporation with its headquarters and principal place of business at 600 Mountain Avenue, Murray Hill, NJ. NAC can be served with process via its registered agent, Corporation Service Company, at 251 Little Falls Drive, Wilmington DE 19808. On information and belief, Defendant NAC is a wholly owned subsidiary of Defendant Nokia Corp.

5. On information and belief, Defendant ASN is incorporated in France with its principal place of business at Centre Villarceaux, Route De Villejust, 91620, Nozay, France. On information and belief, through Nokia's acquisition of Alcatel-Lucent in 2016, Defendant ASN is a wholly owned subsidiary of Defendant Nokia Corp. All defendants, Nokia Corp., NAC, and ASN, may be collectively referred to as "Nokia."

JURISDICTION AND VENUE

6. This lawsuit is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

7. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has personal jurisdiction over Defendants in that they have, directly or through agents and/or intermediaries, committed acts within the State of Texas giving rise to this action and/or have established minimum contacts with the State of Texas such that the exercise of jurisdiction would not offend traditional notions of fair play and justice.

Nokia Corp.

9. This Court has personal jurisdiction over Nokia Corp. because, *inter alia*, and on information and belief, Nokia Corp. has established the minimum contacts with the State of Texas for the Court to exercise personal jurisdiction over it.

10. Nokia Corp. is also subject to personal jurisdiction in this Court under the Texas Long-Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, and under the U.S. Constitution, because, on information and belief, Nokia Corp. regularly conducts business in the State of Texas, and purposefully avails itself of the privileges of conducting business in the State of Texas, including through its wholly-owned subsidiaries, such as NAC which has regular established places of business in the State of Texas. In particular, on information and belief, Nokia Corp., directly and/or through its agents, intermediaries, and/or subsidiaries, makes, uses, imports, offers for sale, sells, and/or advertises its products and affiliated services in the State of Texas. Through its agents, intermediaries, and/or subsidiaries, Nokia Corp. placed, and continues to place, infringing products into the stream of commerce via established distribution channels, with the knowledge and/or understanding that such products are sold in the State of Texas.

11. On information and belief, and based on Nokia Corp.'s activities, directly and/or through its agents, intermediaries, and/or subsidiaries, occurring within the State of Texas, Nokia Corp. should reasonably expect its actions to have consequences in the State of Texas. In

addition, on information and belief, Nokia Corp. has, and continues to transact business with persons in the State of Texas, directly and/or through third parties, and/or its intermediaries, by importing, offering to sell, and/or selling Accused Products and services that infringe Xtera's Asserted Patents. These acts by Nokia Corp. have and continue to cause foreseeable harm and injury to Xtera, including Xtera U.S., a Delaware Corporation with its principal place of business in Allen, Texas.

12. Nokia Corp. is also subject to jurisdiction in the United States, and specifically in the State of Texas, pursuant to Rule 4(k) (2) of the Federal Rules of Civil Procedure. Nokia Corp. has contacts with the United States that include, *inter alia*, advertising, importing, offering to sell, and/or selling its products throughout the United States, including the State of Texas.

13. Venue is proper as to Nokia Corp. in this judicial district pursuant to 28 U.S.C. § 1391(c) (3).

NAC

14. This Court has personal jurisdiction over NAC because, *inter alia*, and on information and belief, NAC has established the minimum contacts with the State of Texas for the Court to exercise personal jurisdiction over it.

15. NAC is also subject to personal jurisdiction in this Court under the Texas Long-Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, and under the U.S. Constitution, because, on information and belief, NAC regularly conducts business in the State of Texas, and purposefully avails itself of the privileges of conducting business in the State of Texas, including through its regular established places of business in the State of Texas. In particular, on information and belief, NAC, directly and/or through its agents, intermediaries, and/or subsidiaries, makes, uses, imports, offers for sale, sells, and/or advertises its products and

affiliated services in the State of Texas. Through its agents, intermediaries, and/or subsidiaries, NAC placed, and continues to place, infringing products into the stream of commerce via established distribution channels, with the knowledge and/or understanding that such products are sold in the State of Texas.

16. On information and belief, and based on NAC's activities, directly and/or through its agents, intermediaries, and/or subsidiaries, occurring within the State of Texas, NAC should reasonably expect its actions to have consequences in the State of Texas. In addition, on information and belief, NAC has, and continues to transact business with persons in the State of Texas, directly and/or through third parties, and/or its intermediaries, by importing, offering to sell, and/or Accused Products and services that infringe Xtera's Asserted Patents. These acts by NAC have and continue to cause foreseeable harm and injury to Xtera, Inc., a Delaware Corporation with its principal place of business in Allen, Texas.

17. NAC is also subject to jurisdiction in the United States, and specifically in the State of Texas, pursuant to Rule 4(k) (2) of the Federal Rules of Civil Procedure. NAC has contacts with the United States that include, *inter alia*, advertising, importing, offering to sell, and/or selling its products throughout the United States, including the State of Texas.

18. Venue is proper as to NAC in this judicial district pursuant to 28 U.S.C. §§ 1391 and 1400(b).

ASN

19. This Court has personal jurisdiction over ASN because, *inter alia*, and on information and belief, ASN has established the minimum contacts with the State of Texas for the Court to exercise personal jurisdiction over it.

20. ASN is also subject to personal jurisdiction in this Court under the Texas Long-Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, and under the U.S. Constitution, because, on information and belief, ASN regularly conducts business in the State of Texas, and purposefully avails itself of the privileges of conducting business in the State of Texas. In particular, on information and belief, ASN, directly and/or through its agents, intermediaries, and/or subsidiaries, makes, uses, imports, offers for sale, sells, and/or advertises its products and affiliated services in the State of Texas. Through its agents, intermediaries, and/or subsidiaries, ASN placed, and continues to place, infringing products into the stream of commerce via established distribution channels, with the knowledge and/or understanding that such products are sold in the State of Texas.

21. On information and belief, and based on ASN's activities, directly and/or through its agents, intermediaries, and/or subsidiaries, occurring within the State of Texas, ASN should reasonably expect its actions to have consequences in the State of Texas. In addition, on information and belief, ASN has, and continues to transact business with persons in the State of Texas, directly and/or through third parties, and/or its intermediaries, by importing, offering to sell, and/or selling Accused Products and services that infringe Xtera's Asserted Patents. These acts by ASN have and continue to cause foreseeable harm and injury to Xtera, Inc., a Delaware Corporation with its principal place of business in Allen, Texas.

22. ASN is also subject to jurisdiction in the United States, and specifically in the State of Texas, pursuant to Rule 4(k) (2) of the Federal Rules of Civil Procedure. ASN has contacts with the United States that include, *inter alia*, advertising, importing, offering to sell, and/or selling its products throughout the United States, including the State of Texas.

23. Venue is proper as to ASN in this judicial district pursuant to 28 U.S.C. § 1391(c)(3).

THE PATENTS-IN-SUIT

24. On July 15, 2003, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 6,594,071 ("the '071 patent"), entitled "Method and apparatus for amplifier control" naming Pavle Gavrilovic, Peter J. Goudreau, James E. Newby, and Ricardo E. Saad as the inventors. Neptune Subsea IP Ltd. is the owner by assignment of all right, title and interest in the '071 patent and has the exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 042586/0916. A true and correct copy of the '071 patent is attached hereto as Exhibit 1.

25. According to the '071 patent, two common approaches to controlling amplifier gain are the use of logarithmic amplifiers and the use of electronic range switching. These approaches, however, can suffer from low linearity and accuracy over all or a part of the amplified bandwidth. In addition, these approaches often require a significant trade-off between bandwidth and accuracy in that, as the amplified bandwidth increases, the errors associated with controlling gain using these approaches also increases.

26. The '071 patent generally relates to a system and method for controlling optical amplifier gain using a control system with a plurality of control legs. Each leg receives a different percentage of the optical signal, and the value of at least one of the received portions of the optical signal is scaled and then used to control the gain of the amplifier. The system and method described by the '071 patent allows for optical amplifier gain to be controlled without the disadvantages of conventional gain control methods.

27. On July 1, 2003, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 6,587,259 ("the '259 patent"), entitled "System and Method for Controlling Noise Figure" naming Mohammed N. Islam, Carl A. Dewilde, and Michael J. Freeman as the inventors. Neptune Subsea IP Ltd. is the owner by assignment of all right, title and interest in the '259 patent and has exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 042586/0916. A true and correct copy of the '259 patent is attached hereto as Exhibit 2.

28. According to the '259 patent, optical amplifiers generate noise through a variety of phenomena, such as when amplified optical input signals interact with one another and when amplified optical input signals interact with amplifier pump signals. In addition, optical amplifiers tend to create different levels of noise along the amplified wavelength spectrum. According to the '259 patent, although conventional optimization techniques could counter the effects of noise generated by a particular source, they were not equipped to respond to scenarios where the shape of the amplifier noise figure changed over time.

29. The '259 patent generally relates to a system and method for controlling and maintaining the noise figure of an optical amplifier. More specifically, the '259 patent describes an optimization technique for amplifiers in which the system adjusts the power of the amplifier pump signals based at least in part on the power of the optical input signals to achieve an intended noise figure.

30. On February 19, 2013, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,380,069 ("the '069 patent"), entitled "Introduction-Side Dispersion Shifting of Channels" naming Wayne S. Pelouch, and Do-Il Chang as the inventors. Neptune Subsea IP Ltd. is the owner by assignment of all right, title and interest in the '069 patent and has

exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 042586/0916. A true and correct copy of the '069 patent is attached hereto as Exhibit 3.

31. According to the '069 patent, non-coherent signals (using non-coherent modulation) traveling through a fiber optic network can affect the coherent detection of coherent signals (using coherent modulation) depending on the difference in dispersion maps between the two types of signals. Mixed non-coherent and coherent signals are found in older systems that have been upgraded with new channel capacity, where new coherently-modulated channels are added to existing traffic over non-coherent channels using non-coherent modulation. This involves adding new equipment to generate coherent signals, and multiplexing those signals together with non-coherent channels for outgoing transmission on the line. Due to differences and/or interference between non-coherent and coherent transmissions, it can be necessary to apply different dispersion compensation to each set of channels in order to optimize signal quality.

32. The '069 patent generally relates to systems and methods of using different dispersion-compensating elements for the non-coherent channels than the coherent channels, so as to compensate for this degradation and optimize transmission of mixed signals over the network.

33. Collectively, the '071 patent, '259 patent, and '069 patent are referred to herein as the "Asserted Patents."

BACKGROUND

34. The technologies at issue generally relate to telecommunication systems, subsystems and components thereof, that are used to carry digital data, such as telephone,

Internet and private data traffic over a significant distance between the terminal equipment where the signal is generated to the terminal equipment where the signal is received.

35. These telecommunication systems are designed to address the challenge of transmitting data signals across various different environments. To address these challenges, these telecommunication systems rely on specialized equipment and components such as: (i) optical amplifiers or repeaters, which boost the intensity of light signals traveling through the fiber optic cable at certain intervals so that the signals do not become too attenuated, or faint, before they reach their destination (ii) terminal equipment, which transmits and receives optical signals that are transmitted across the fiber optic cable using high-powered lasers, provides optical signal control, monitoring, and other functionality, and connects to other data networks, (iii) multiplexers, demultiplexers, wave-selective switches (WSS) and reconfigurable optical add/drop modules (ROADM) that combine and separate wavelengths to control which channel will be transmitted along which path, (iv) dispersion compensation modules for compensating the chromatic dispersion of a span of transmission fiber, and (v) various types of fiber optic cable, which can transmit light waves containing data across different distances at required speeds and withstand various harsh environments.

36. Xtera pioneered the use of all-Raman amplification to improve the capacity and reach of long span terrestrial and submarine optical networks. Xtera deployed its first commercial all-Raman fiber optic terrestrial network in Europe, in 2004.

37. At the time, the network was the highest capacity and longest distance all-optical network in Europe. Xtera then expanded its offerings from terrestrial to submarine networks in 2007 when it introduced its Nu-Wave NXT platform, which provided a dedicated platform for even long-haul subsea telecommunication systems.

38. Xtera introduced its current product offering designed to improve the performance of its telecommunication systems, the Nu-Wave Optima, in October 2010, with its first deployment in early 2011. *See* https://www.xtera.com/products-services/ (last accessed November 8, 2018).

39. The Nu-Wave Optima can be configured with combinations of discrete and distributed Raman amplifiers and can be used to power and extend both terrestrial and submarine optical networks. These include Nu-Wave Optima with Span Extension (SE) Modules, which can be configured as both forward and backward Raman amplifiers.

40. The Nu-Wave Optima can also be configured with an EDFA Optical Amplifier (EOA), or with an SE module and EOA. Some networks have also deployed an EOA variant at the terminal, the Dual Controlled Amplifier (DCA) module.

41. Through development of advanced optical amplifiers, repeaters, remote monitoring and control equipment, and other optical networking components, and full turnkey systems, and subsystem upgrades, Xtera has become an industry leader in telecommunication applications and offers industry leading solutions that optimize the performance and reduce the cost of deploying, upgrading, and managing subsea and terrestrial telecommunication systems – a position it continues to hold today, driving advances in fiber optics networking through aggressive research and development and cutting-edge products.

42. Nokia offers and provides submarine and terrestrial telecommunication systems, subsystems, system upgrades and various components thereof.

43. Nokia either itself and/or through the activities of its subsidiaries, develops, manufactures, assembles, imports, sells, and/or uses in the United States the Nokia Accused Products, including at least the Nokia Systems utilizing 1830 systems, Nokia Systems utilizing

1620 systems, Nokia Systems utilizing Photonic Service Engine Technology, and/or Nokia Systems utilizing Nokia's multi-pump Raman modules, High Gain Raman amplifier modules, Hybrid Raman/EDFA amplifier modules, and Variable Gain EDFA amplifier modules (collectively, the "Accused Products"). The Nokia Accused Products incorporate—without license from Xtera—many technologies developed by Xtera and protected by patents assigned to Xtera.

COUNT ONE – INFRINGEMENT OF THE '071 PATENT

44. Xtera incorporates by reference its allegations in Paragraphs 1–43 as if fully restated in this paragraph.

45. On information and belief, Nokia has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, at least independent claims 1 and 14 and one or more dependent claims of the '071 patent ("Asserted Claims") by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, the Accused Products.

46. The '071 patent is generally directed to a system and method for controlling optical amplifier gain using a control system with a plurality of control legs. Among the Asserted Claims of the '071 patent, Claim 1 recites as follows:

A control system for use in an optical amplifier, the control system comprising:

a. a plurality of control legs, each operable to receive one of plurality of portions of an optical signal, wherein each of the plurality of portions comprises a different percentage of the optical signal;

b. a plurality of registers, each associated with one of the control legs and each operable to store a value proportional to the portion of the optical signal communicated in the associated control leg;

c. a controller operable to select one of the values stored in one of the plurality of registers and to scale that value by a scaling factor to generate a scaled value, wherein the scaling factor is determined at least in part by the percentage of the optical signal associated with that value;

d. wherein the controller is operable to generate, based at least in part on the scaled value, a control signal operable to affect the gain of the amplifier.

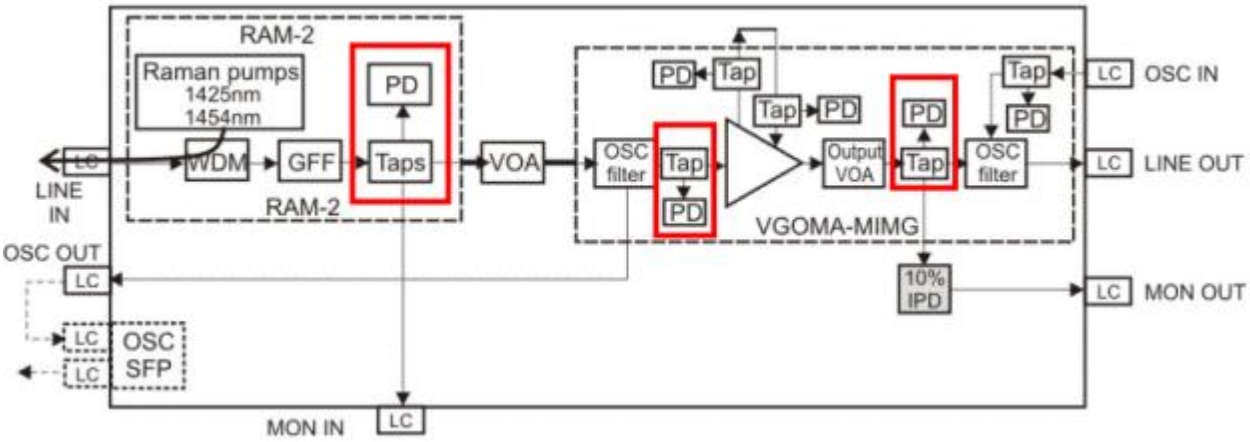
47. On information and belief, for example, and without limitation Nokia Systems utilizing Nokia's Variable Gain amplifier modules meet the limitations of Claim 1 of the '171 patent.

48. On information and belief, and by way of example, Nokia provides a control system for use in at least these Variable Gain amplifier modules. On information and belief, this control system comprises: a plurality of control legs receiving different percentages of the optical signal, storage registers associated with the optical signal communicated to each control leg and a controller that selects one of the stored values, scales the values and generates a control signal operable to affect the gain of the amplifier, as shown below.

49. For instance, on information and belief, Nokia's A2P2125 hybrid amplifier monitors the input optical signal by using "taps" connected to photodiodes ("PD") (i.e., "control legs"). Each tap control leg is coupled to the input port of the amplifier and is operable to receive a portion of the input optical signal. Each of the plurality of portions comprises a different percentage of the optical signal. On information and belief, the control electronics of

the product include registers that store a value proportional to the percentage of the optical signal received for each "tap." The controller in the control electronics scales the stored values. The controller then generates a control signal based on the scaled values, which is used to affect the gain of the amplifier.

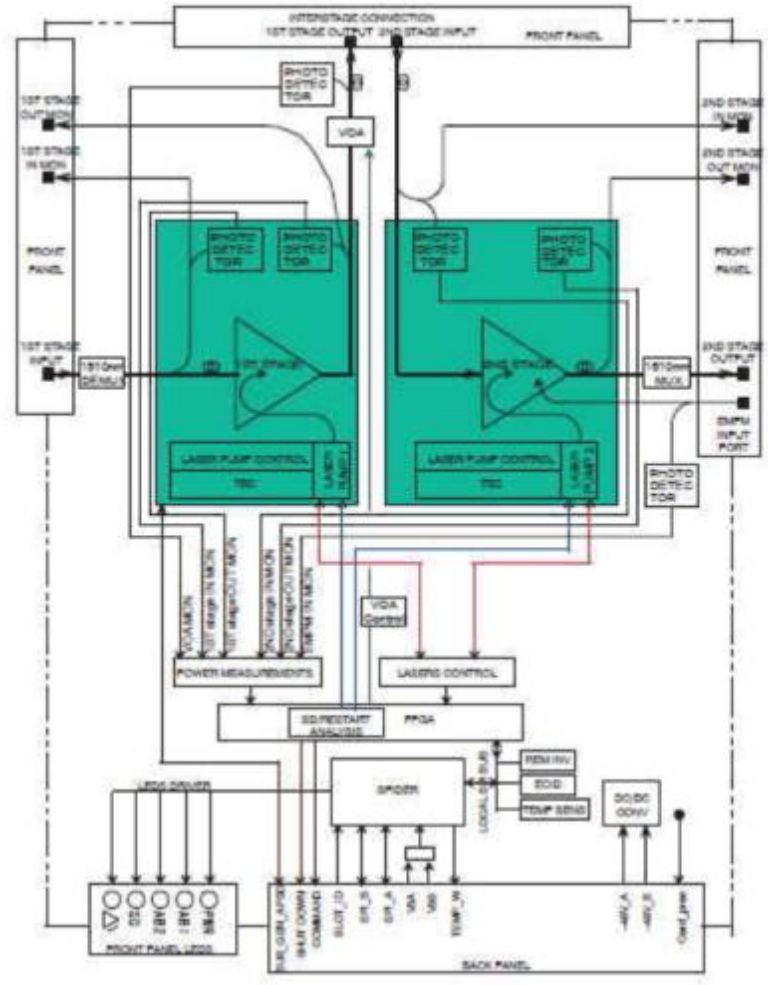
Figure 18-103 A2P2125 block diagram



See Ex. 4 (*ALU 1830 PSS Product Information and Planning Guide R8.2* at 18-317).

50. As another example, on information and belief, Nokia's 1620 Light Manager / SOFTNODE ("1620") comprises Line Optical Fiber Amplifiers ("LOFA") that monitors the input optical signal by using photo detectors (i.e., "control legs"). Each control leg is coupled to the input port of the amplifier and is operable to receive a portion of the input optical signal. Each of the plurality of portions comprises a different percentage of the optical signal. On information and belief, the control electronics of the product include registers that store a value proportional to the percentage of the optical signal received for each control leg. The controller in the control electronics scales the stored values. The controller then generates a control signal based on the scaled values, which is used to affect the gain of the amplifier.

Figure 3-34 LOFA11x0 Block Diagram



See Ex. 6, Alcatel-Lucent 1620 LM SLTE Product Information and Planning Guide, Rel. 5.2 at 3-97.

51. Nokia has had knowledge and notice of the '071 patent at least since the filing this Complaint.

52. On information and belief, Nokia also has been and is now actively inducing infringement of the Asserted Claims of the '071 patent, either literally or under the doctrine of equivalents.

53. On information and belief, Nokia makes, uses, sells or offers for sale in the United States or imports into the United States the Accused Products, possesses an affirmative

intent to actively induce infringement by others, including purchasers and end users who deploy and make use of the Accused Products.

54. On information and belief, Nokia has intended, and continues to intend to induce infringement of the Asserted Claims of the '071 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, Nokia knowingly and actively induces infringement of the Asserted Claims of the '071 patent by encouraging, instructing, and aiding end users to use one or more of the Accused Products and/or by selling the Accused Products to others. On information and belief, Nokia induces such infringement by, at a minimum, providing manuals, white papers, training, and/or other technical support with specific intent to induce purchasers and end users of the Accused Products to perform acts intended by Nokia to cause direct infringement of the Asserted Claims of the '071 patent in the United States.

55. On information and belief, Nokia also has been and is now contributing to the infringement of the Asserted Claims of the '071 patent, either literally or under the doctrine of equivalents.

56. On information and belief, Nokia has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the Asserted Claims of the '071 patent by having sold or offered to sell and continuing to sell or offer for sale the Accused Products within in the United States and/or by importing the Accused Products into the United States, with knowledge that the infringing technology in the Accused Products is especially made and/or especially adapted for use in infringement of the Asserted Claims of the '071 patent. On information and belief, Nokia has

contributed to the infringement by others with knowledge that the infringing technology in the Accused Products is a material part of the patented invention, and with knowledge that the infringing technology in the Accused Products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products, infringe and will continue to infringe the Asserted Claims of the '071 patent because, due to their specific designs, the Accused Products and components thereof do not have any substantial non-infringing uses. On information and belief, Nokia has such knowledge at least because the claimed features of the '071 patent are used by others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products.

57. On information and belief, Nokia knew or should have known of the '071 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '071 patent. On information and belief, Nokia's infringement of the '071 patent has been and continues to be willful and deliberate. On information and belief, the market for telecommunication systems including optical amplifiers is small and contains a limited number of competitors, with Xtera being a known pioneer with whom Nokia has great familiarity. On information and belief, Nokia used the technology in the Asserted Claims of the '071 patent to develop and its Accused Products without permission from Xtera.

58. On information and belief, despite knowing that its actions constituted infringement of the Asserted Claims of the '071 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, Nokia nevertheless continued its infringing actions, and continues to make, use and sell its Accused Products.

59. Nokia's acts of infringement have injured and damaged Xtera. Nokia's wrongful conduct has caused Xtera to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling, offering to sell and importing the patented inventions. On information and belief, Nokia will continue these infringing acts unless enjoined by this Court.

COUNT TWO – INFRINGEMENT OF THE '259 PATENT

60. Xtera incorporates by reference its allegations in Paragraphs 1–59 as if fully restated in this paragraph.

61. On information and belief, Nokia has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, at least independent claims 1 and 65 and one or more dependent claims of the '259 patent ("Asserted Claims") by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, the Accused Products.

62. The '259 patent is generally directed to a system and method for controlling and maintaining the noise figure of an optical amplifier. Among the Asserted Claims of '259 patent, Claim 1 of the '259 patent recites as follows:

An optical amplifier operable to amplify a plurality of optical wavelength signals at least in part through Raman amplification, the amplifier comprising an amplifier stage comprising:

a. an input operable to receive a plurality of wavelength signals;

b. an output operable to communicate at least some of the plurality of wavelength signals; a pump assembly operable to generate one or more pump signals; and

c. a gain medium operable to receive the plurality of wavelength signals and the one or more pump signals and to facilitate amplification of at least some of the plurality of wavelength signals;

d. wherein the amplifier stage has associated with it a noise figure having a shape varying as a function of wavelength and wherein at least one of the one or more pump signals is operable to have its power adjusted based at least in part on a signal power of one or more of the plurality of wavelength signals at an input to the gain medium of the amplifier stage to approximately maintain an intended shape of the noise figure.

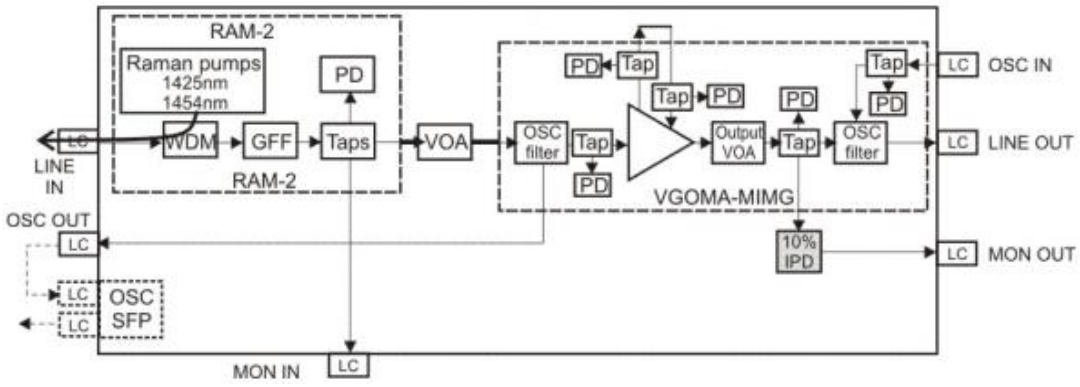
63. On information and belief, Nokia's Accused Products meet the limitations of claim 1 of the '259 patent. On information and belief, for example, Nokia's Hybrid Raman-EDFA Module provides amplification systems and methods that use a plurality of output wavelength signals, generated pump signals, and a gain medium to receive the plurality of wavelength signals. The gain medium operates to receive the plurality of wavelength signals and the pump signals and facilitates amplification. At the amplification stage the pump signals are operable to adjust power based on the power of the optical input signals to maintain an intended shape of the noise figure. By way of example, the block diagram and product description for the A2P2125-Hybrid Raman + EDFA Amplifier are shown below.

- A2P2125 - Hybrid Raman + EDFA Amplifier with Mid-Stage Access +21 dBm Output power and 25 dB gain

  The A2P2125 is a unidirectional LD with two amplifier modules (2-pump Raman module and a medium gain EDFA module) integrated. The A2P2125 is a two-slot wide and full-height card, supported on the PSS-32 and PSS-16 shelf types. Because of the combination of Raman amplification and EDFA gain stage, the A2P2125 is often referred to as a hybrid LD. It can be used in place of RA2P+AM2125B combinations. There is no mid-stage access for DCM. The target application of the A2P2125 is for supporting coherent amplification. Between the Raman module and the EDFA module is an internal VOA. The internal VOA allows the A2P2125 to maximize the Raman gain on the fiber. If the incoming power exceeds the flat gain region of the VGOAM, then the VOA will reduce the input power so that the gain remains flat. The hybrid A2P2125 may be used as an ingress LD at a WR8-88A/WR8-88AF ROADM, or at a WR2-88 ROADM. The A2P2125 is not supported in FOADM configurations nor in CWR8 or CWR8-88 TOADM configurations.

See Ex. 4 (*ALU 1830 PSS Product Information and Planning Guide R8.2*) at 2-66.

Figure 18-103 A2P2125 block diagram



Id. at 18-317.

Applications and limits

The A2P2125 may be used as an ingress LD for the following:

- ROADM with WR8-88A/WR8-88AF
- ROADM with WR2-88

The A2P2125 is not supported in FOADM configurations, or in CWR8 or CWR8-88 TOADM configurations.

The A2P2125 may be used as an ingress LD at a ROADM. When this is done, one of the following egress LDs must be used on the same optical line.

- AM2318A
- AM2125A
- AM2125B

An A2P2125 can not be used as an egress LD at a ROADM, FOADM or TOADM node.

A2P2125 may be used at ILAs. When it is used at an ILA, the LD for the opposite direction at that ILA must be a unidirectional LD. In the current release, this means that the opposite direction LD shall be one of the following:

- AM2318A
- AM2125A
- AM2125B
- A2P2125

If an A2P2125 is used at an ILA, the far end of the span that the A2P2125 launches into cannot be terminated with an OSCT card because the OSCT will prohibit the functioning of APR.

An RA2P or an RA3P can not precede an A2P2125 at the end of a span.

A PB1 can not be used at the head end of a span that has an A2P2125 at the tail end.

Note: The Raman module of the A2P2125 operates only in AGC mode. Site planning considerations from "RA2P site planning" (p. 18-323) should be applied.

Id. at 18-318.

Table 22-87 AM2125A EDFA amplifier detailed specifications (continued)

Parameter	Conditions	Min	Max
Optical damage threshold	At all optical ports	26 dBm	
Total input signal power range minimum (Input LOS threshold settable range)		−35 dBm	6 dBm
Signal gain	Under Software Control in 0.1 dB steps	15 dB	31 dB
Gain accuracy	Defined as deviation of total output signal gain from nominal set gain.	−0.5 dB	0.5 dB
Gain tilt set range		−4 dB	4 dB
Gain tilt accuracy	Gain tilt is defined as the gain variation of a least-square-fitted line of the output channel power levels over the full signal band.	−0.4 dB	0.4 dB
Gain variation at nominal gain tilt (within 15–25 dB gain range)	Defined as the peak-to-peak gain difference. At the nominal gain tilt of −1.0 dB, the gain variation is at its smallest.		0.8 dB
Gain variation at ±4 dB Tilt (within 15–25 dB gain range)			1.8 dB
Gain variation at extended gain range (within 25–31 dB)			1.8 dB
Gain tilt at extended gain range	28 dB	−3.2 dB	
	31 dB	−5.3 dB	
Noise figure at 24-25 dB gain			5.3 dB
Noise figure at 22 dB gain			5.4 dB
Noise figure at 20 dB gain			5.7 dB
Noise figure at 18 dB gain			6.2 dB
Noise figure at 16 dB gain			6.9 dB

*Id.*at 22-125.

Table 22-87 AM2125A EDFA amplifier detailed specifications (continued)

Parameter	Conditions	Min	Max
Noise figure at 14 dB gain			8.1 dB
Noise figure at 28 dB gain			5.2 dB
Noise figure at 31 dB Gain			5.2 dB
Output VOA loss range		18 dB	

*Id.*at 22-126.

64. Nokia has had knowledge and notice of the ’259 patent at least since the filing of this Complaint.

65. Nokia also has been and is now actively inducing infringement of one or more claims of the Asserted Claims of the ’259 patent, either literally or under the doctrine of equivalents.

66. On information and belief, Nokia makes, uses, sells or offers for sale in the United States or imports into the United States the Accused Products, possesses an affirmative intent to actively induce infringement by others, including purchasers and end users who deploy and make use of the Accused Products.

67. On information and belief, Nokia has intended, and continues to intend to induce infringement of the Asserted Claims of the ’259 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, Nokia knowingly and actively induces infringement of the Asserted Claims of the ’259 patent by encouraging, instructing, and aiding end users to use one or more of the Nokia’s Accused Products and/or by selling the Accused Products to others. On information and belief, Nokia induces such infringement by, at a minimum, providing manuals, white papers, training, and/or other technical support with specific intent to induce purchasers and end users of the Nokia’s Accused Products to perform acts intended by Nokia to cause direct infringement of the Asserted Claims of the ’259 patent in the United States.

68. On information and belief, Nokia also has been and is now contributing to the infringement of the Asserted Claims of the ’259 patent, either literally or under the doctrine of equivalents.

69. On information and belief, Nokia has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the Asserted Claims of the ’259 patent by having sold or offered to sell and continuing to sell or offer for sale the Accused Products within in the United States and/or by importing the Accused Products into the United States, with knowledge that the infringing technology in the Accused Products is especially made and/or especially adapted for use in infringement of the Asserted Claims of the ’259 patent. On information and belief, Nokia has contributed to the infringement by others with knowledge that the infringing technology in the Accused Products is a material part of the patented invention, and with knowledge that the infringing technology in the Accused Products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products, infringe and will continue to infringe the Asserted Claims of the ’259 patent because, due to their specific designs, the Accused Products and components thereof do not have any substantial non-infringing uses. On information and belief, Nokia has such knowledge at least because the claimed features of the Asserted Claims of the ’259 patent are used by others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products.

70. On information and belief, Nokia knew or should have known of the ’259 patent and has acted, and continues to act, in an egregious and wanton manner by infringing the Asserted Claims of the ’259 patent. On information and belief, Nokia’s infringement of the Asserted Claims of the ’259 patent has been and continues to be willful and deliberate. The market for optical amplifiers and Raman solutions is small and contains a limited number of competitors, with Xtera being a known pioneer with whom Nokia has great familiarity. On

information and belief, Nokia used the technology in the Asserted Claims of the ’259 patent to develop and its Accused Products without permission from Xtera.

71. On information and belief, despite knowing that its actions constituted infringement of the Asserted Claims of the ’259 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, Nokia nevertheless continued its infringing actions, and continues to make, use and sell its Accused Products.

72. Nokia’s acts of infringement have injured and damaged Xtera. Nokia’s wrongful conduct has caused Xtera to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling, offering to sell and importing the patented inventions. On information and belief, Nokia will continue these infringing acts unless enjoined by this Court.

COUNT THREE – INFRINGEMENT OF THE ’069 PATENT

73. Xtera incorporates by reference its allegations in Paragraphs 1–72 as if fully restated in this paragraph.

74. On information and belief, Nokia has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, at least independent claims 1, 11 and 13 and one or more dependent claims of the ’069 patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, the Accused Products.

75. The ’069 patent is generally directed to systems and methods of introducing different dispersions to coherent and the non-coherent optical channels before mixing the coherent and the non-coherent optical channels for transmission through a partially dispersion

compensated optical link, so as to avoid signal degradation caused by optical dispersion and optimize transmission of mixed signals over the network.

76. Among the Asserted Claims of the '069 patent, Claim 1 recites as follows:

An optical system comprising:

a. a non-coherent source that provides a set of one or more non-coherent optical wavelength channels;

b. a coherent source that provides a set of one or more coherent optical wavelength channels;

c. an introduction node that receives the non-coherent optical wavelength channel set from the non-coherent source, and receives the coherent optical wavelength channel set from the coherent source, and combines the coherent and non-coherent optical wavelength sets to form a mixed optical wavelength channel set that is provided onto an at least partially dispersion compensated optical fiber link, the introduction node comprising;

d. a dispersive element that introduces different dispersion levels into either or both of the coherent optical wavelength channel set and the non-coherent optical wavelength channel set such that the coherent optical wavelength channel set has a shifted dispersion map as compared to the non-coherent optical wavelength channel set.

77. On information and belief, Nokia's Accused Products meet the limitations of at least claim 1 of the '069 patent. On information and belief, for example, and without limitation Nokia's 1830 Photonic Service Switch ("1830") provides an optical system comprising a number of transponders, muxponders, and amplifiers. On information and belief, the 1830 includes 10G

and 40G optical transponders that provide the non-coherent source and a 100G transponder and a 500 muxponder that provide the coherent source, as shown below.

Interface cards

Transponder/Muxponder

Platform	Card ID	Card description	Half, full height	Notes
PSS-8, -16, -32	D5X500, D5X500Q, D5X500L, D5X500 Subsea	500G Muxponder	2 full slots	Configurable 100G – 500G DWDM line with up to 5 x 100G clients • CFP4 and QSFP28 (D5X500Q) client options • C & L (D5X500L) band options • Subsea option (D5X500 Subsea)
All	12P120	12 x 10G Flexible Transponder/Client	full	Full-slot 6 x 10G transponder or 12 x 10G as programmable 10G ports
All	1UD200	1 x 100G/200G Line	full	Configurable 100G/200G line rate with distributed packet/OTN connectivity
All	20P200	20 x 10G Multiservice Client	full	High-density multiservice clients with distributed packet/OTN fabric
PSS-8,-16,-32	S13X100R, S13X100E	100G Universal: transponder, muxponder, uplink, ADM	full	10G, 40G, and 100G clients: 100 GE/OTU4, 40GE/OTU3, 10GE, OTU2, OC-192/STM-64, CFP4, QSFP28/QSFP+, SFP+ • Low latency, 100G wire speed encryption (AES-256) (S13X100E)
All	11DPM12	11G Dual Port Multi-rate Transponder	full	• 2 x 10G XFP lines: OTU2 (CWDM, DWDM, B&W) • 12 x SFP clients: FE, GE, FC100/200/400, OC3/STM1 OC12/STM4 OC48/STM16, OTU1, SD-SDI, HD-SDI
All	11DPM8	8 x ANY Card	full	• 8 x SFP clients: OC-3/-12/STM-1/-4, OC-48/STM-16, 10/100 base T, GE • 2 x XFP lines: OTU2 (CWDM, DWDM, B&W)
All	11QPA4B	4 x Any 10G Transponder	full	• 4 x pluggable DWDM XFPs or CWDM XFPs • 10GE, OC-192/STM-64 (SONET/SDH), OTU2/OTM-0.2 [G.709] • FC800, FC1200 (ANSI INCITS 364-2003) • 5G DDR IB
PSS-4	11DPM4M	11G Dual Port Multi-rate Transponder	half	• 2 x XFP lines • 4 x SFP clients for FE, G1, OC3/STM1, OC12/STM4, OC48/STM16
PSS-4	11DPM4E	11G Dual Port Multi-rate Extension	half	• Backplane mated with 11DPM4M • 4 x SFP clients for FE, G1, OC3/STM1, OC12/STM4, OC48/STM16
PSS-4, 8, 16	11QPA4B	4 x 10G Transponder	half	• 4 x 10G SFP+ (OTU2/2e) network ports • 4 x 10G SFP+ 10GE client ports
PSS-4, 8	8P20	10G Dual 8xAny Muxponder	half	• 2 x SFP+ lines • 8 x SFP clients for 1 GE, OC3/STM1, OC48/STM16
PSS-8, 16, 32	S2AD200, S2AD200R, S2AD200H	200G Muxponder	half	• 1 x 100G QPSK/200G 16QAM line • 2 x QSFP28 clients for 100GE, OTU4 • Regional "R" and long Haul "H" variants

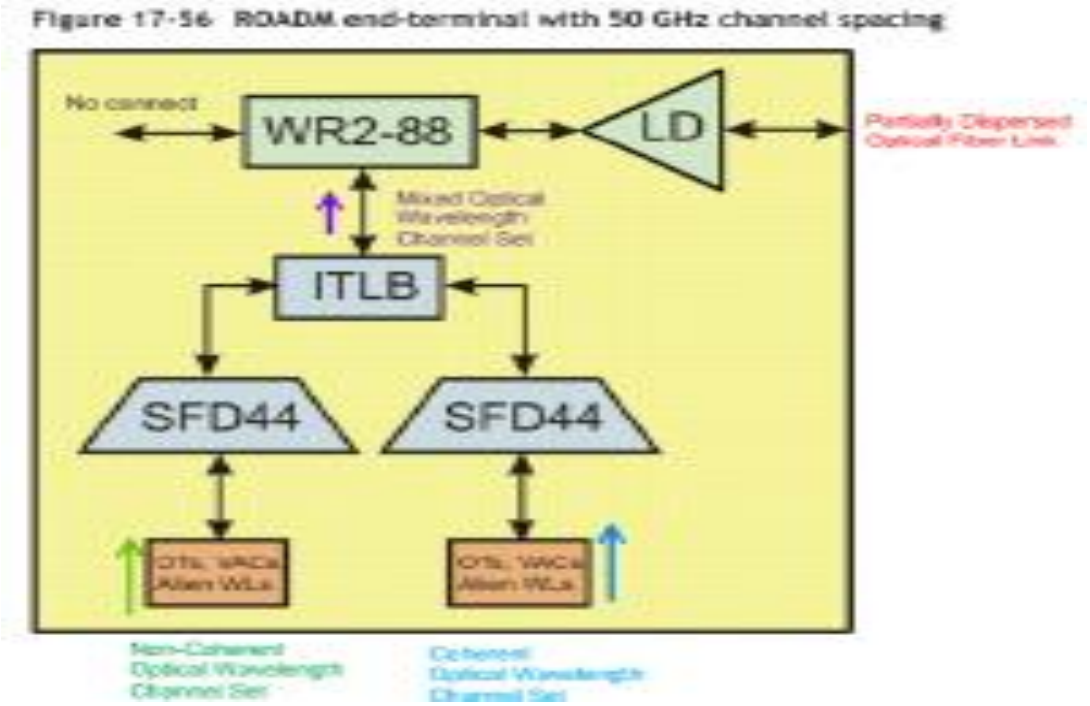
Amplifiers

Platform	Card ID	Card description	Half, full height	Notes
PSS-16, -32	RA2P-96	Long Haul – 2 Pump Raman, no mid-stage access	full	LH Coherent Raman 10 dB for SSMF; 14 dB for LEAF; 16 dB for TWRS
PSS-16, -32	AAR-8A	Amplifier Array – 8 Amps	full	CDC-F and fixed grid
PSS-4, 8, 16	AA2DONWB	40ch Bi-directional amplifier	half	• BA: 18dB fixed Gain, 13~23dB adjustable, +16dBm Max. • PA: 18dB fixed Gain, 13~23dB adjustable, +16dBm Max.
PSS-16, -32	ASWG	Switched Gain EDFA Amplifier	full	Selectable gain control for optimized network performance: 7 dB - 22 dB, 13 dB - 29 dB
PSS-32	AWBING	Ultra-Wideband EDFA Ingress Amp	2 full slots	Switched gain high/low setting, integrated C & L band support
PSS-32	AWBEGR	Ultra-Wideband EDFA Egress Amp	2 full slots	Switched gain high/low setting, integrated C & L band support
PSS-32	AWBILA	Ultra-Wideband ILA 2	full slots	Switched gain high/low setting, integrated C & L band support

See Ex. 5 (Nokia 1830 Datasheet at pp. 6-7).

78. On information and belief, when the 1830 is integrated into a telecommunications platform a node is created that combines both the coherent and non-coherent optical wavelength channels to form a mixed optical wavelength channel. On information and belief, the 1830

allows the mixed optical wavelength channels onto a partially dispersed optical fiber link, as shown below.



See Ex. 4 at 17-61 (annotated).

79. On information and belief, the 1830 provides a dispersion compensation module capable of introducing different dispersions levels into either or both coherent and non-coherent wavelength channel sets, so that the coherent set has a shifted dispersion map compared to the non-coherent set. On information and belief, many of Nokia's transponders use an embedded DSP to compensate for dispersion by introducing different dispersion levels into the coherent optical channel set.

80. On information and belief, as another example, and without limitation Nokia's 1620 provides an optical system comprising a number of transponders, muxponders, and amplifiers. On information and belief, the 1620 includes 10G and 40G optical transponders that

provide the non-coherent source and 40G and 100G transponders that provide the coherent source, as shown below.

Table 3-2 Transponders and Functionalities

Board Name	Functionalities
TRBD1191	10G NRZ modulation. 1 pluggable user interface. 50 GHz grid
TRBD1192	10G NRZ modulation. XFP user optical interface. Front panel access for pre-compensation. 1 version : 25 GHz grid
TRBD1292	10G RZ modulation. XFP user optical interface. Front panel access for pre-compensation. 2 versions: 33 GHz and 50 GHz grid
TRBD1293	10G RZ modulation. Universal pluggable user optical interface. VOA with front panel access for pre-compensation. DCM, embedded ROFA amplifier, and embedded TDCM on receive and transmit ports. 2 versions: 33 GHz and 50 GHz grid
TRBD1592	10G RZ-DPSK modulation. XFP user optical interface. Front panel access for pre-compensation. 2 versions : 33 GHz and 25 GHz grid
TRBD4616	40G P-DPSK modulation. Very short reach user optical interface. Front panel access for pre-compensation. Tunable dispersion compensation. 50 GHz grid. EFEC
TRBD4816	Coherent 40G RZ-BPSK modulation. Very short reach user optical interface. Front panel access for pre-compensation. 50 GHz grid. EFEC
TRBDXA98	Coherent 100 GbE/OTU4 PDM-iRZ-QPSK modulation. LR 4/10 and ER4 user optical interface. 40/50 GHz grid. Soft Decision FEC (SDFEC).
TRBC1190	10G NRZ modulation. 4 pluggable user optical interfaces, optically connected to TRBD1xyz or TRBC4xyz. XFP on the line side. No VOA, no pre-compensation, no filter, no TDCM. 50 GHZ grid
TRBC1212	10G RZ modulation. Front panel access for pre-compensation. 4 pluggable user optical interfaces. 2 versions: 33 GHz and 50 GHz grid
TRBC4616	40G P-DPSK modulation. Four pluggable (XFP) user optical interfaces. Front panel access for pre-compensation. Tunable Dispersion Compensation. 50 GHz grid. EFEC.

See Ex. 6, Alcatel-Lucent 1620 LM SLTE Product Information and Planning Guide, Rel. 5.2 at 3-9.

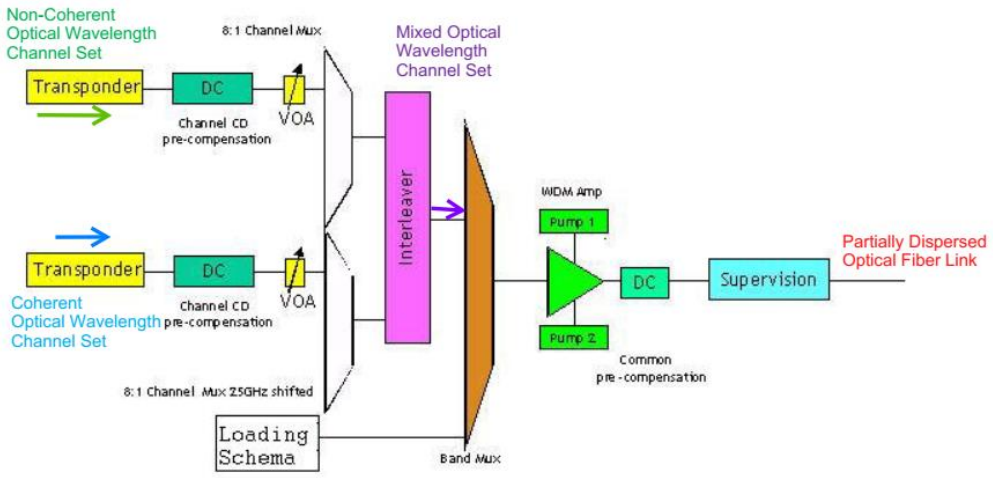
Table 3-2 Transponders and Functionalities (continued)

Board Name	Functionalities
TRBC4816	Coherent 40G iRZ-PDM-BPSK modulation. Front panel access for pre-compensation. 4 pluggable user optical interfaces. 50 GHz grid.
TRBC4817 50 GHz	40G iRZ-PDM-BPSK modulation. Front panel access for pre-compensation. XFP at client side. Optional PCDC. Supports transparent mapping of 10GbELAN and OTU2e client. 50 GHz grid. Based on EFEC.
TRBC4817 33 GHz	40G iRZ-PDM-BPSK modulation. Front panel access for pre-compensation. XFP at client side. Optional PCDC. Supports transparent mapping of 10GbELAN and OTU2e client. 33 GHz grid. Can be cabled to the CMDX1030 33GHz MUX/DEMUX. Enhanced for 40Gb/s support. Based on EFEC.
TRBC4819 33 GHz and 50 GHz	Coherent 40G iRZ-PDM-BPSK modulation. Front panel access for pre-compensation. XFP at client side. Soft Decision FEC. 48.086Gb/s.
TRBCX018 (Multi grid management: 40 GHz and 50 GHz)	Coherent 50 Gb/s iRZ-PDM-BPSK modulation. 100 Gb/s iRZ-PDM-QPSK modulation. Soft Decision FEC (SDFEC) differential/Trellis detection mode.
TRBCXB18 (Multi grid management: 40 GHz and 50 GHz)	Coherent 50 Gb/s PDM-DRZ-rot-BPSK modulation. 100 Gb/s PDM-DRZ-QPSK. Soft Decision FEC (SDFEC).

See id. at 3-10.

81. On information and belief, when the 1620 is integrated into a telecommunications platform a node is created that combines both the coherent and non-coherent optical wavelength channels to form a mixed optical wavelength channel. On information and belief, the 1620 allows the mixed optical wavelength channels onto a partially dispersed optical fiber link, as shown below.

Figure 2-3 25GHz Transmit Path Outline Diagram Example



See id. at 2-3 (annotated).

82. On information and belief, the 1620 provides a dispersion compensation module capable of introducing different dispersions levels into either or both coherent and non-coherent wavelength channel sets, so that the coherent set has a shifted dispersion map compared to the non-coherent set. On information and belief, many of Nokia's transponders use an embedded DSP to compensate for dispersion by introducing different dispersion levels into the coherent optical channel set.

83. Nokia has had knowledge and notice of the '069 patent at least since May 11, 2018, when Nokia filed its Opening Markman Brief filed in Investigation No. 337-TA-1098 in the United States International Trade Commission.

84. . Nokia also has been and is now actively inducing infringement of one or more claims of the Asserted Claims of the '069 patent, either literally or under the doctrine of equivalents.

85. On information and belief, Nokia makes, uses, sells or offers for sale in the United States or imports into the United States the Accused Products, possesses an affirmative

intent to actively induce infringement by others, including purchasers and end users who deploy and make use of the Accused Products.

86. On information and belief, Nokia has intended, and continues to intend to induce infringement of the Asserted Claims of the '069 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, Nokia knowingly and actively induces infringement of the Asserted Claims of the '069 patent by encouraging, instructing, and aiding end users to use one or more of the Nokia's Accused Products and/or by selling the Accused Products to others. On information and belief, Nokia induces such infringement by, at a minimum, providing manuals, white papers, training, and/or other technical support with specific intent to induce purchasers and end users of the Nokia's Accused Products to perform acts intended by Nokia to cause direct infringement of the Asserted Claims of the '069 patent in the United States.

87. On information and belief, Nokia also has been and is now contributing to the infringement of the Asserted Claims of the '069 patent, either literally or under the doctrine of equivalents.

88. On information and belief, Nokia has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the Asserted Claims of the '069 patent by having sold or offered to sell and continuing to sell or offer for sale the Accused Products within in the United States and/or by importing the Accused Products into the United States, with knowledge that the infringing technology in the Accused Products is especially made and/or especially adapted for use in infringement of the Asserted Claims of the '069 patent. On information and belief, Nokia has

contributed to the infringement by others with knowledge that the infringing technology in the Accused Products is a material part of the patented invention, and with knowledge that the infringing technology in the Accused Products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products, infringe and will continue to infringe the Asserted Claims of the '069 patent because, due to their specific designs, the Accused Products and components thereof do not have any substantial non-infringing uses. On information and belief, Nokia has such knowledge at least because the claimed features of the '069 patent are used by others including, but not limited to, resellers, distributors, customers, and/or other end users of the Accused Products.

89. On information and belief, Nokia knew or should have known of the '069 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '069 patent. On information and belief, Nokia's infringement of the Asserted Claims of the '069 patent has been and continues to be willful and deliberate. On information and belief, the market for optical network solutions is small and contains a limited number of competitors, with Xtera being a known pioneer with whom Nokia has great familiarity. Upon information and belief, Nokia used the technology in the Asserted Claims of the '069 patent to develop and its Accused Products without permission from Xtera.

90. On information and belief, despite knowing that its actions constituted infringement of the Asserted Claims of the '069 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, Nokia nevertheless continued its infringing actions, and continues to make, use and sell its Accused Products. Nokia's acts of infringement have injured and damaged Xtera.

91. Nokia's wrongful conduct has caused Xtera to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling, offering to sell and importing the patented inventions. Upon information and belief, Nokia will continue these infringing acts unless enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, Xtera respectfully requests the following relief:

1. A judgment that Nokia has directly and/or indirectly infringed, either literally or under the doctrine of equivalents, and continues to infringe the Asserted Claims of the '071, '259, and '069 patents.
2. A judgment that the Asserted Patents are valid and enforceable;
3. A judgment permanently enjoining Nokia, their parents, subsidiaries, affiliates, agents, servants, employees, attorneys, representatives, successors and assigns, and all others in active concert or participation with them from infringing the Asserted Patents;
4. A judgment awarding Xtera damages adequate to compensate for past, present, and future infringement, said damages being no less than a reasonable royalty and/or lost profits, and any pre- and post-judgment interest as allowed by law, costs, and other damages permitted by 35 U.S.C. § 284;
5. A judgment finding that Nokia's infringement of the '071, '259, and '069 patents was deliberate and willful;
6. A judgment awarding Xtera enhanced damages up to three times their amount pursuant to 35 U.S.C. § 284, together with interest and costs;

7. An accounting to determine the damages to be awarded to Xtera as a result of Defendants' infringement, including an accounting for infringing sales not presented at trial and an award of additional damages for any such infringing sales;

8. A judgment declaring that this case is exceptional, and awarding Xtera its reasonable expenses, costs, and attorneys' fees in accordance with 35 U.S.C. § 285 and Rule 54(d) of the Federal Rules of Civil Procedure;

9. An award to Xtera of costs and expenses that it incurs in prosecuting this action; and

10. A judgment awarding Xtera such further, necessary and proper relief as this Court may deem just and reasonable.

DEMAND FOR A JURY TRIAL

Xtera hereby respectfully requests a trial by jury of all issues so triable, pursuant to Rule 38 of the Federal Rules of Civil Procedure.

Dated: April 26, 2019

By: */s/ John A. Powell*

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